802.1Qcc More Streams

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Presentation Intro

- From 802.1Qcc PAR: "**Support for more streams**"
  - Solve current MRP limits of ~530 streams; enhance for future
  - Previous presentations on this topic
    - http://www.ieee802.org/1/files/public/docs2010/at-cgunther-mrp-timers-0310-v02.pdf
    - http://www.ieee802.org/1/files/public/docs2011/avb-dolsen-srp-limitations-v2.pdf
    - http://www.ieee802.org/1/files/public/docs2013/new-tsn-cummings-improving-srp-with-rsvp-0313-v1.pdf
- Goal: Consensus for Qcc progress
- Approach
  - Ask a question in each slide
  - List some pro's and con's for each answer
  - Recommend an answer
  - Attempt to record a consensus from the task group

Use IETF's RSVP (Instead of SRP)?

- Pro's
  - RSVP solved overhead reduction (RFC 2961)
  - Works toward goal of common protocols for L2 & L3
- Con's
  - RSVP is a concluded Working Group
    - Transition from IntServ to DiffServ
  - Enhancements required to transition from SRP
    - E.g. L2 mapping, methodology diffs, Tspec diffs, MVRP, …
- Recommendation: No
  - Defer RSVP project to a future Gen 3 TSN effort
  - As a first step, work with IETF on RSVP / SRP translation

Enhance MRP (Instead of MSRP)?

- Pro's
  - Core problem relates to MRP timers and state machines
    - Changes to Talker Advertise only would address symptoms
  - Solution benefits past and future MRP applications as well
- Con's
  - Larger scope of change = more risk
  - Must ensure compatibility… "new" linked to "old" works
- Recommendation: Yes (MRP)

Summary (Instead of Longer Timers)?

- Summary = reduction of agreed attributes
  - Hash, list of IDs, …
- Longer Timers = no summary, but more time to re-declare
  - E.g. Longer LeaveAll timer; allow re-declare up to next LeaveAll
- Pro's
  - Summary removes the limit
  - Longer timer merely increases limit; may reach again in future
- Con's
  - More complex change to MRP
- Recommendation: Yes (Summary)

Summary: Between Neighbors (Instead of Entire Network)?

- Pro's
  - Network-wide not possible when pruning is enabled
    - E.g. With pruning, an MSRP bridge doesn't have all TA's
  - Not all attributes propagate (e.g. MSRP Domain)
  - MRPDUs are exchanged between neighbors
- Con's
  - IS-IS Agreement Digest (summary) works on network-wide database, so neighbor-wide summary cannot be integrated
- Recommendation: Yes (Neighbors)

Summary: Point-to-point LAN Only?

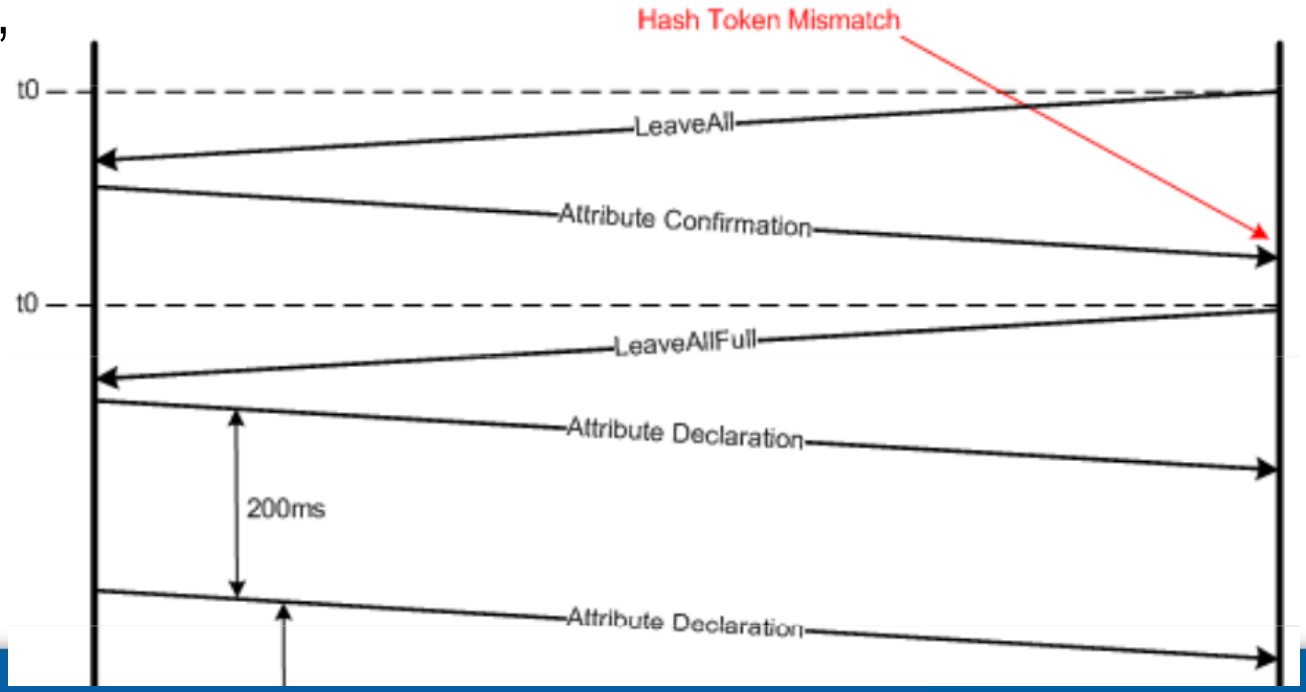
- For this “more streams” feature, negotiate summary with only one neighbor
- Pro’s
  - Greatly simplifies negotiation of the summary
  - Precedent with 802.1aq (SPB)
- Con’s
  - This feature may not work on shared media (e.g. 802.11)
    - Other “Gen 2” features may still be usable on shared media
    - May depend on work in 802.1Qbz / 802.11ak
- Recommendation: Yes (point-to-point)

Summary: Hash (Instead of ID List)?

- Hash = checksum like MD5
- Pro's
  - MRP's attribute value has no clear "ID"
    - E.g. In MSRP Talker Ad, Stream ID is part of the value
  - Precedent with MD5 in IS-IS Agreement Digest
  - Covers all data, which addresses concerns like reboot
- Con's
  - RSVP Overhead Reduction used ID List
    - With "Epoch" to address reboot
- Recommendation: Yes (Hash)

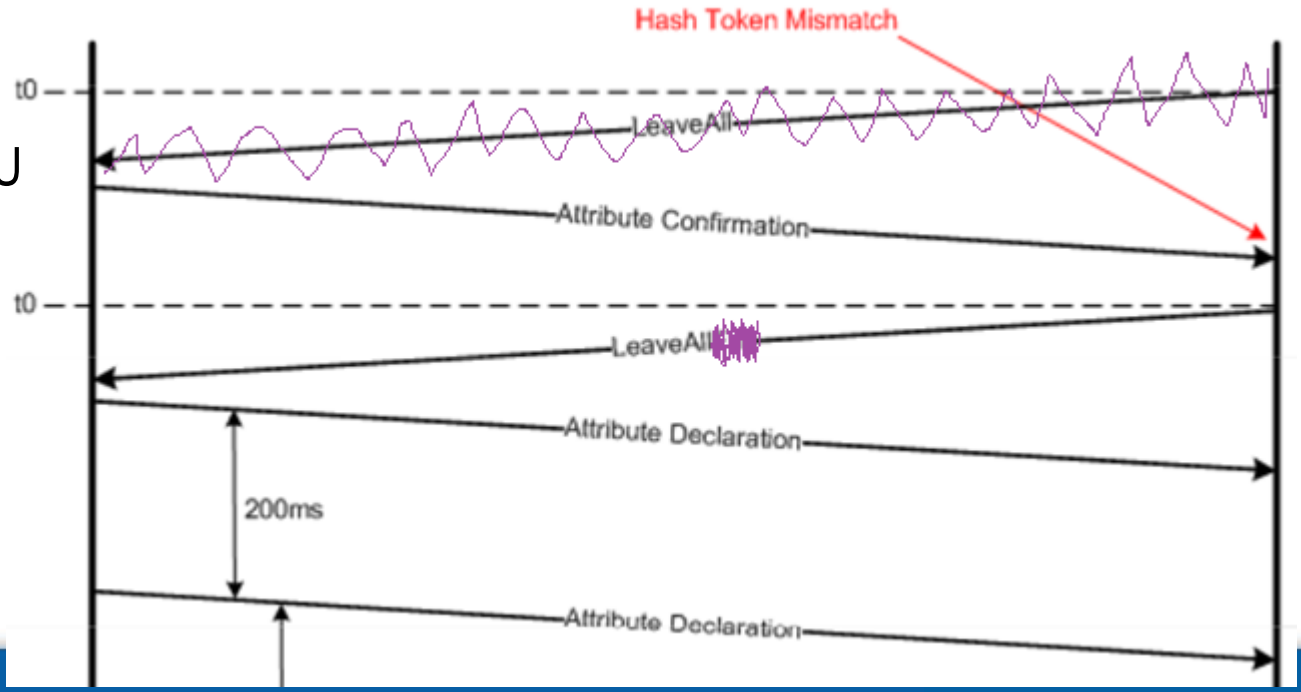
What Overall Timing Diagram? (1 of 2)

- Original proposal from
  - http://www.ieee802.org/1/files/public/docs2011/avb-dolsen-srp-limitations-v2.pdf
- New response to LeaveAll is the summary
  - "Attribute Confirmation" as a hash
- New "LeaveAllFull" triggers re-declare



What Overall Timing Diagram? (2 of 2)

- New proposal (recommended)
- Send summary instead of LeaveAll (e.g. every 10 seconds)
- On hash mismatch, respond with actual LeaveAll
  - Same meaning as today… re-declare
- Pro's
  - One less new MRPDU
  - LeaveAll response same



On Hash Mismatch, How Do We Timeout Re-declarations?

- Original proposal: LeaveTime * (number of attributes from previous match)
  - Problem: What if I add 600 new attributes after previous?
    - If previous had 1 attribute, reverts back to today's problem
- New proposal (recommended): Restart leavetimer when receive a declare
  - If something new to declare, time to declare something else
  - After you are quiet for awhile, I assume we can hash
  - Pro: No limit to total attributes

Exclude Periodic Tx With This Feature?

- Periodic Transmission re-declares every 1 second
  - Intended for lossy environments
  - Excluded for MSRP, Mandatory for MVRP and MMRP
- Pro's
  - Keeping it retains "chattiness", breaks previous timeout proposal
  - MRP periodicDisabled! event provides a simple way to disable
- Con's
  - ???
- Recommendation: Yes
  - periodicDisabled! = true when "more streams" feature is used